Behavioural Biases in Investing – Concepts, Categorization, Indicators and Remedial Measures

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Abstract

Investment decisions are not only complex but also reflexive most of the times. There have been several studies to explain these complex decisions of investors. The theory of rationality was not amply successful in explaining the investment behaviour and it intrigued researchers to explore other influencing factors like behavioural aspects. Behavioural finance is a interdisciplinary science that provides supporting evidences to certain erratic behaviours of investors. At this juncture, to bring together the concepts, categorization, indicators and remedial measures to behavioural biases becomes very fetching. The paper attempts to present a vivid description of various behavioural biases, followed by their categorization as cognitive and emotional biases.

In the present study, the behavioural biases of investors are categorized based on market conditions (bull and bear) and volatility as well, to provide an insight and stay conscious about them. An investor should be preferably more ready about biases, a few indicators of the biases and remedial measures to handle the biases forms the essence of the paper. Few tests like Myers Briggs Test etc., identified at the end of the paper can prove to be very handy while handling the behavioural biases in investing in stock markets.

Key Words: *Bear and Bull Markets, Behavioural Biases, Investments, Remedies, Securities Markets, Volatility*

Introduction:

Decision making is a complex activity, and so are investment decisions. The key objective of investment activity is to deploy money to earn in return more sum of money. For decades, investment decisions had been taken on the basis of stock market performance, share price movements and trend forecasting. Eventually, studies revealed that the conventional way of analysing investment decisions has left an unidentified a gap between estimated and real gains/losses. This proved to be an evidence for fundamental mistakes in the decision making.

Although, in the past researchers have explored the behavioural anomalies serving as psychological drivers for these errors, according to Glaser et al (2004) Behavioural Finance emerged as significant extension of behavioural economics, incorporating key insights from disciplines like psychology and sociology.

Literature Review:

Lue Thi Bich Ngoc, Ho Chi Minh(2013), This study explored the influence of the behavioral variables on the individual investors' decisions. **Dr.Mandeep Kaur & Tina Vohra(2014),** Individual investor behavior was driven by various psychological factors such as precautions, under confidence, conservatism, under optimism and information inferiority complex. **Sunitha Kumaran(2013),** study has been undertaken to investigate whether locus of control predicts hot-come effect and its converse gambler's fallacy, when making personal investment decisions. The current state of research from the efficient market and behavioral perspectives therefore suggest that an inclusive and diverse approach in the choice of theoretical explanations of the behavior of financial markets will be the pragmatic response to the inconclusive results on either side of the debate. **A.Sarath Babu & R.Ramesh Kumar(2015),** applied fuzzy logic to understand the underpinning relationship between national sentiments, investor sentiments and their impact on stock market activities. Facebook Gross National Happiness Index (FGNHI) and Volatility Index of India (VIX) which is a fear gauge of investors are used. The study applied Adaptive Neuro Fuzzy Inference System, a non-linear method, to understand the relationship between the sentiment score and NSE index return & compares the performance of ANFIS and VAR, a linear model. "Greed dominates in bullish markets" "Panic

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prevails in the bearish markets" "Negative sentiments get dissipated quickly in volatile periods". Tobias Baer(2018), attempted to understand debiasing and role of data analytics in counter activity to reduce risks. Some leading institutions are putting behavioral targeting into practice by applying psychometrics. Introduction of creative workarounds into the existing infrastructure, especially in IT implementation, financial institutions have a pragmatic approach of powerful behavioral segmentation linked to target treatments.

Raluca Bighiu Qawi (2010), intended to show through a variety of pre-existing academic research and personal experience in the investment management field that investors' individual beliefs,opinions and values could influence those of a group, be influenced by social factors and in effect change outcomes in the markets. People have a tendency to compare their thinking to that of the group, where the individual investor makes a decision carrying less risk than the group, typically the individual revises his own decisions to an increased level of risk to follow the group thinking, this is called risky shift. Dr.Adrian Mitroi(2014), infer that there is linear dependence between daily returns and the index series of BEFTI does not follow a random walk pattern. Non-normal distribution series is a widely followed proof of inefficiency in prices.

Objectives Of The Study

The study aims to provide a bird's eye view of the theory of behavioral finance and serve as a ready reckoner for investors. Following are the objectives of the study –

- To classify the behavioural biases for better understanding.
- To map the biases against the volatility of markets.
- To provide enough justification for the classification.
- To identify the handling mechanisms and indicators for the biases.
- To summarize all the remedial measures for biases.

Methodology & Limitations:

The present study is conceptual in nature and undertaken purely based on secondary data. This study is presented in three sections viz., first section deals with the classification and justification of behavioural biases, then followed by next section with handling of these biases and final section describes the remedial measures that can be handy in de-biasing.

As this study is based on secondary data alone, it doesn't provide any experimental evidence for the classification and mapping of biases. But, the conceptual framework provided can definitely ease the researchers' attempt to empirical evidence in future studies.

Findings And Discussions

I Classification -Behavioural Biases:

A. Cognitive Biases:

1. ***Representativeness:*** It is an anomaly where, the investors believe that every performing enterprise is a representative of a breeding investment. There might also exist a strong motive to relate historical performance with probable returns in future.
2. ***Trend Chasing /Momentum Chasing:*** It is a common practice among investing fraternity to choose funds based on past performance and further recent investment experience often becomes the representative of likely future returns.
3. ***Over-Confidence:*** It is quite human that confidence is often celebrated, yet we hardly understand that it is not the only contributing factor for success. Often, investors are prone to overestimate their predictability mettle and may end up presuming themselves to be super knowledgeable than they actually are. All this leads to unnecessary trading urge.
4. ***Anchoring:*** Also known as confirmation bias; An individual who considers to looks out for data that confirms with his/her own ideas and views while selecting the decision alternatives than checking out information that contradicts.
5. ***Herding:*** Investors may not like standing out of crowd, particularly when there is an uncertainty about a firm's performance. When the uncertainty surrounding a firm being followed is low, investors tend to be confident but when the uncertainty is high, investors are convergent in behaviour and tend to follow the crowd.
6. ***Gamblers Fallacy:*** It is observed usually that the investors misappropriate trend reversal. They may end up in predicting too good or poor results.
7. ***Hind Sight:*** This bias might lead investors to a tendency that post-event one starts to believe that the event had good probability of prediction and was quite obvious. In reality, the chances of the event prediction accurately would have been grim.
8. ***Availability Bias:*** Investors place undue weight for making decisions on the most available information.
9. ***Familiarity & Home Bias:*** Whenever, individuals get habituated to prioritizing familiar investments, despite the fact that gains are more probable from divergent portfolios. Investors may experience immense anxiety in the process investing and as they encounter dilemma in choosing between well known-moderately performing securities and less known- well performing securities; the anxiety peaks. Mostly, they tend to believe well- known securities are less risky and fall within the confidence

zone. This leads to under-performing portfolios. Individuals sometimes overweigh the home country/company stocks; this is referred as home bias.

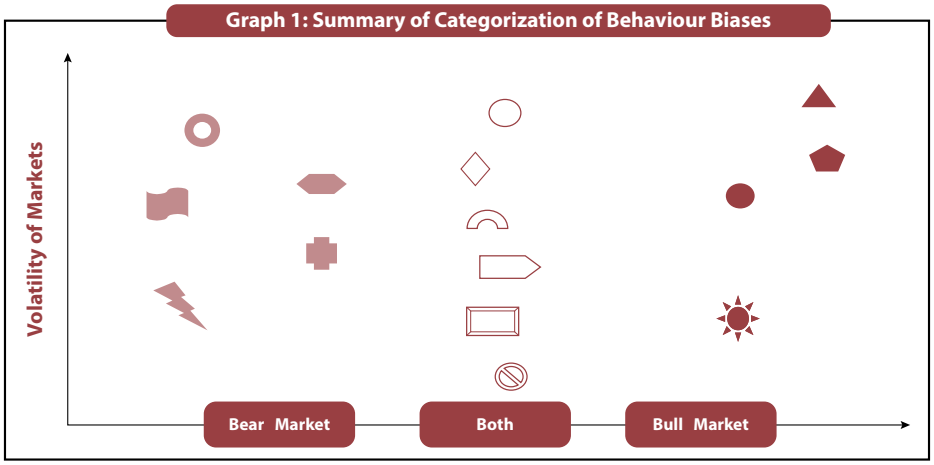
B. *Emotional Biases*

1. ***Loss Aversion & Status Quo Bias:*** Investors unduly seek risks when they encounter losses, however they turnout risk avert when they enjoy gains. This tendency is termed as loss aversion. It is significant to note that undue preference to current status is termed as status quo bias and this feeling emerges basically from comfort-seeking and uncertainty avoidance nature of people.
2. ***Regret Aversion:*** This bias refers to the intense emotion to avoid regret feeling. People do not like to be tagged for choosing wrong alternative. Investors as soon as they anticipate regret, start taking less risks, as they sense less susceptibility to poor outcomes. This phenomenon can offer enough explanation for investor reluctance in selling loss making securities.
3. ***Mental Accounting:*** This bias is collectively refers to the activities investors adopt while organising, evaluating and tracking their money and investments. It is imperative that individuals assign labels and prioties to specific accounts. Sources and utility of money are ear-marked, ignoring the fungibility of money.
4. ***Self Attribution:*** Investors who exhibit self-attribution bias tend to attribute every successful outcome to their own actions and poor outcomes to external uncontrollable factors. People often show this bias as a mechanism of self-protection. Investors affected by self-attribution bias may also tend to be overconfident.
5. ***Disposition Effect:*** At times, individuals tend to label investments as winners and losers. Disposition effect might lead an investor to stick to a security that has no upside, further they may hurry in selling a well performing stock in anxiety to make up for the previous loss. This can prove to be damaging resulting in increase in capital gain taxes simultaneously mitigating pre-tax returns.
6. ***Optimism:*** This comes in people when they underrate the negative happenings and will always hope of favourable outcomes. The optimistic people believe that situation will turn in their favour and will bring positive outcomes, so with this motive they take risky decisions.

Table 1: Summary of Categorization of Behaviour Biases

S.No	Bull Market	Bear Market	Both
1.	Momentum Chasing	Over-Confidence	Representativeness
2.	Herding	Hind Sight	Anchoring
3.	Gamblers Fallacy	Availability	
4.		Familiarity & Home Bias	Framing
5.	Loss Aversion & Status Quo Bias	Regret Aversion	Mental Accounting
6.			Self Attribution
7.			Disposition Effect
8.			Optimism

Graph 1: Summary of Categorization of Behaviour Biases



II .Justification for Categorization of Behavioural Biases:

A. Cognitive Biases

- ***Representativeness: It is observed in both bull and bear market conditions.***

Justification: Investment decisions are generally affected by this bias in both bull as well as bear market conditions. Investors trading in bull market assume good companies to be good investment alternatives based on fundamental analysis. There is also intensifying of representativeness bias as it gets coupled with optimism and availability biases. While in bear markets, investors if remain risk averse, then would go with the belief that companies / stocks with positive past preference would prove to be good investment options. Hence, representativeness can be observed in decision making in both bull and bear markets.

Volatility: Representativeness has a positive correlation with the volatility of markets. As the markets get more volatile, investors tend to be more affected by representativeness bias.

- ***Momentum/Trend Chasing: Observed in Bull Market.***

Justification: Investors are more likely to experience this bias during the continuing uptrend in the market. They unduly start believing that the upward trend in the market would continue for substantial amount of time till they realize the expected returns. They totally ignore the chances of markets swinging either way at any point in time as propounded by EMH theory. Hence trend chasing bias is more prevalent with investors in bull markets.

Volatility: When the markets are found to be highly volatile, these investors usually do not have enough time to follow/ chase trends.

- ***Over-confidence: Observed in Bear Markets***

Justification: Investors tend to be over confident in bear markets. This over-confidence might be stemming from either of the following –optimism, anchoring, availability biases or combination of them. It may also result out of regret aversion at times. When a down trend is found in the market, investors tend to over-rate their predictability and also over-estimate the validity of information/knowledge and rely more upon their decisions to earn high portfolio returns.

Volatility: In highly volatile markets, investors tend to show relatively more streaks of over – confidence.

- ***Anchoring: Observed in both bull and bear market conditions***

Justification: Though investors are subject to anchoring in both bull as well as bear market conditions, they tend to anchor more in bear markets. When the stock market falls continuously and investors start seeing losses more and more, they would anchor their beliefs on what they believe/assume to be true.

At times, when the market shows upward trend also, investors may under rate some of the investment alternatives owing to their pre-conceived anchor.

Volatility: In highly volatile stock markets, anchoring is experienced strongly, as the volatility increases uncertainty of returns from the investments increases leading to investors anchoring to their strong beliefs.

- ***Herding : Observed in Bull Market***

Justification: Investor herding behaviour is observed in bull markets. When the markets moves upwards traders start chasing the momentum. But at the same time, several others would just follow the going trend and keep investing in securities in anticipation of higher returns. Herding attitude of investors is equally observed whenever there is a downward trend in the market. Investors tend to over-react in the bear market and sell-off their securities.

Volatility: In excessively volatile markets, herding is convergent compared to mild volatility of markets.

- ***Gamblers Fallacy: Observed in Bull Market***

Justification: Investors tend to miss-judge the reversals most of the times. Too optimistic investors predict positive ends more often and they rarely expect trend reversal. While experiencing negative results, they expect quick trend reversal.

Volatility: There is a high positive correlation between gambler's fallacy and volatility of markets.

- ***Hind Sight: Observed in Bear Markets***

Justification: It is actually a post-ante effect. Usually this bias is experienced during market corrections after the end of a bear trend. If the investor gets a strong feeling that he/she knew it all along, there is more probability that he/she knew may turn out to be more over confident.

Volatility: There is no much evidence to conclude that any relationship exists between volatility and hind sight bias.

- ***Availability Bias: Observed in Bear Markets***

Justification: Investors tend to be relatively exposed to availability bias during a continuous downward trend in the market. As the market falls, pessimistic and risk averse investors are more susceptible to bias than optimistic and risk seekers.

Volatility: In extreme volatility of markets, investors tend to have availability bias than in less uncertain market conditions.

- Familiarity & Home Bias: Observed in Bear Markets

Justification: Investors tend to show more Familiarity Bias during a continuous downward trend in the market. As the market falls, pessimistic and risk averse investors are more exposed to this bias than optimistic ones.

Volatility: In extreme volatility of markets, investors tend to experience familiarity bias.

- Framing: It is observed in both bull and bear market conditions.

Justification: The context of decision making is significant both in bull as well as bear markets. According to the expected utility theory of traditional economics, a decision should not be influenced by the frame of the problem/solution. But in the context of investment decisions, the frame matters in both bull markets and bear markets .

In bull markets, investors see the frame positively and tend to become too optimistic or over-confident, whereas in bear markets the same investors tend to perceive the negative frame and emerge as risk averts.

Volatility: In fluctuating markets, majority of investors tend to have a negative framing owing to the uncertainty. But, there are also studies that suggest highly volatile markets provide very less framing time and thus make framing insignificant.

B. Emotional Biases

- Loss Aversion & Status Quo Bias: Observed in Bull Market

Justification: In a market that is moving upwards , investors experience positive returns and hence tend to become risk averse, while the trend is down, investors start experiencing losses leading to risk seeking tendency. Loss aversion is a personality characteristic rather than a reaction to a situation. So, if the investor is losses avert he/she would remain avert to losses irrespective of market trends.

Volatility: However, status quo bias is more prominent in bull market conditions- seen in volatile markets.

- Regret Aversion: Observed in Bear Markets

Justification: Regret Aversion – As anticipation of losses is generally more in bear market conditions, this leads to anticipated regret as well in investors. Those investors in bear markets tend to be more regret averse than in bull markets. Regret aversion explains investor behaviour of hanging onto the losing stocks.

Volatility: Regret aversion is also a characteristic that can be seen in investors irrespective of the volatility of markets.

- Mental Accounting: It is observed in both bull and bear market conditions

Justification: It is incorporated in the way investors organise and allocate their money. They practise mental accounting all the time, but it is more evident when the market is bearish than bullish. Mental accounting is influenced by other biases like framing, anchoring etc.

Volatility: Like, regret aversion mental accounting also is done by investors irrespective of volatility of markets.

- Self Attribution: observed in both bull and bear market conditions

Justification: Investors who possess this anomaly tend to attribute positive returns to the effective decisions taken, whereas rather they tend to attribute losses made to the external factors or ill-luck. The former behaviour is seen in bull market trend and later behaviour in bear markets.

Volatility: A key point to ponder is, investors establish a causal relationship between volatility of markets and negative returns earned.

- Disposition Effect: observed in both bull and bear market conditions

Justification: This emotional bias is closely inter-twined with anchoring, loss aversion and regret aversion biases. However, disposition effect is observed more when the market is falling steadily. Investors with disposition effect find it difficult to sell –off squared securities.

Volatility: Investors with pessimistic behaviour are more subject to disposition effect. Volatility of markets has direct relationship with disposition effect in the investors.

- Optimism: Observed in Bull Market

Justification: Optimistic behaviour of investors is in favour of bull markets. Simultaneously, they tend under rate the negative events and hence under react in bear markets, resulting negative portfolio returns. Hence, optimism is an anomaly found in both markets but its affect is prominent in bull markets.

Volatility: The uncertainty in the market decides the level of optimism in investors. More volatile markets produce, less optimistic investors.

III. Handling the Biases:

Behavioural biases are pre-dispositions of a psychological, sociological and even physiological nature that can influence investor decision making, but usually regarded as flaws. These biases are inevitable as they are side effects of the mechanics the brain needs to achieve its astonishing speed and efficiency. Simultaneously it is unfortunate that, the unruly perception of biases can lead us to a myth that we are immune to them. Can these biases be handled or overcome?

Following are insights about debiasing -

- Investor Consciousness about the influence of behavioural anomalies and exercise of self-control while taking decisions.
- Behavioural designing of fin-tech trading platforms.
- Behavioural targeting can be practiced by applying psychometrics.
- Existing IT infrastructure being adopted for grouping based on primary biases investors' are susceptible to and also to determine the personality type while deciding the choice of counter-measure.
- Analytical experts and behavioural scientists can work on a learning experience of exploring the patterns of biases and applying machine learning algorithms to historical data to discover sub-optimal investment decisions, followed by a corrective measure to handle the bias.

Indicators of Behavioural Biases:

- Volatility of Markets – Over-Confidence and Optimism.
- Gender of Customers
  - Women are more susceptible to mental accounting, hot hand fallacy and anchoring bias.
  - Men are more susceptible to momentum chasing bias,optimism and gambler's fallacy
- Volume of Trade
  - High Volumes of trade – Investors tend to exhibit over-confidence, optimism, herding and momentum chasing bias.
  - Low Volumes of trade – Investors are more susceptible to disposition effect, Self-attribution bias, regret aversion
- Experience of Investors
  - Lesser the experience, more the susceptibility to representativeness.
  - More the experience, lesser the susceptibility to Gamblers' Fallacy.

IV. Remedial Measures for Behavioural Biases:

- ***Seeking Contrary Opinions:*** Investors are vulnerable to confirmation bais, as majority of them seek validation from sources that usually fall in line with their available information, rather than looking for contradicting information. But, investors in true spirit should welcome contrary opinions.
- ***Avoid Attachments:*** Investors develop unnecessary attachment to a particular stock for various reasons. Stocks that an investor buys should be supposedly temporary possessions; hence attachment is to be shunned to control Disposition Effect.
- ***Alertness to Crowding Trades:*** Investors are susceptible to herding towards successful stocks. The quant boom ended badly with the "Quant Quake" in 2007. As far as herding, the last entrants into the herd are most affected during market reversals. Hence, it should be understood that mere trade volumes shouldn't be motivation for investments.
- ***Focus on investing rather than trading:*** Retail investors' activity is inversely proportional to the gains they make. So, it is better that one trades less and invests more. One should remain focussed and consistently resist the myth that ones intuition and decisions are superior to others in the market.
- ***Reducing Regrets:*** It is quite natural for human beings to avoid being regretful of their actions. This tendency is very common while investing in stocks, as an investor sells a winner stock at the earliest than a loser. Traders are almost twice likely to sell a winning stock too early and losing position too late. Formulating and adhering to rigid trading rules rather than emotions can be very enticing while handling regret aversion.
- ***Limited Attention Span:*** Investors as such have a plethora of stock choices in the market, yet they identify and relate to only few that are in limelight or gain attention. This behaviour results from confirmation bias. Limit the media noise and an effort should be made to utilise media as one of the data sources out of many.
- ***Avoid Momentum Chasing:*** We as humans are blessed to identify patterns and tend towards following the trend quite often. However, markets are mostly random than repeating past patterns. If investor identifies a trend, in most cases it is already exploited completely by others. If one wants to leverage the inefficiencies in the market, then one needs to indulge in buying when others are fearful and selling when they sound confident.
- ***Build-in Accountability Mechanism:*** It is general phenomenon that, external accountability is far

more effective than self-accountability. Hence, it always better to have a mechanism which makes the investor accountable to someone with regard to his/her decisions. This also enables the investor to remain more rational than emotional in decision making.

- ***Test and Re-Test:*** There are several critical aspects of investment decision among which timing and choice of stocks prove to vital. The investor needs to make it a practice to test and re-test what works and what doesn't in the context of investment decisions. This will lead customized heuristics.
- ***Most importantly-Keep track of failures/mistakes:*** A explicit effort to keep track mistakes and failures would make the investors more learned and experienced contributing to avoid getting into gambler's Fallacy.
- ***Take Tests:*** There are a wide range of psychometric tests available to test your ability to assess based on attitude and emotions. However, tests are to be selected based on the criteria viz., standardization, reliability, validity. Interest tests and Personality Type Tests are very commonly used tests.

Following tests can be used for analysing ones behavioral profile and this awareness would enable to counter the behavioral biases in investing.

- **Wonderlic Test** – This test comes as the Wonderlic Personnel Test-Quicktest (WPT-Q) with 30 questions that are required to be answered in eight minutes and the other one is Wonderlic Personnel Test-Revised (WPT-R) with 50 questions that are to be answered in 12 minutes.
- **PICA and PIBA Tests** - The **PICA test** aims to conduct an unbiased assessment of an individual's cognitive ability. In these tests, a person's abstract intelligence is evaluated. On the other hand, **PIBA** is necessarily a behavioural test that assigns scores in a dissimilar way to the cognitive test. Right or wrong answers are not part of this tests, the answers given, build a picture based on four traits: dominance, extroversion, patience and formality.
- **Myer-Briggs Personality Type Test:** This test was developed by Katharine Cook Briggs and her daughter Isabel Briggs Myers. The personality test is essentially based on the personality indicator. The type test is based on a well drafted series of questions that intend to capture information on how a person tends to respond or relate to diverse situations.

  The responses to the questions are evaluated to asses the person's individual personality type. Understanding ones personality type can provide productive insights, such as optimal professional choice, better personal relationships, and paths to aspiring growth.
- **The Caliper Profile:** This is a comprehensive assessment, which has been used for nearly five decades, measuring personality traits viz., assertiveness across thoroughness. These traits relate to key professional abilities required by corporates.
- **Gallup Strengths Finder Test:** This test was designed in recent decades by Gallup. This agency post-research, suggested that personality assessments lay emphasis on personality flaws rather than strengths. Gallup devised a test, wherein based on responses to 177 statements about thirty four positive traits that the test-taker is likely to possess viz., discipline, communication, the test identifies the top five strengths that most strongly represent the person.
- **Sixteen Personality Factor Questionnaire:** This test, is also commonly referred as the 16PF, was introduced in 1949 by psychologist **Raymond Cattell.** Here, sixteen traits that humans posses in varying degrees are identified. The test falls at another level compared to other personality assessments as it incorporates 170 questions.

Most of these tests can be taken at free of cost, at the same time there are several organizations that give more detailed assessment of personality, behavioural and attitudinal aspects of an individual but they charge fee. As an investor it is worth to invest in knowing personality profile as it can fetch a conscious insight about behavioural biases in investing.

Conclusion

Based on the study the nine biases are categorised as cognitive biases and remaining six biases falls under emotional biases category. Four biases (Momentum Chasing, Herding, Gamblers' Fallacy, Loss Aversion) are often observed among investors in bull market conditions, whereas biases viz., Overconfidence, Hindsight, Availability Bias, Familiarity Bias, Regret Aversion are prevalent when the market is bearish. Representativeness, Framing, Self-Attribution Bias, Disposition Effect, Optimism are omniscient in markets. Volatility, gender, volume of trade, experience in investing stand out as major indicators of biases. Focus on investing rather than trading excessively and avoidance of momentum chasing can serve as best remedial measures while overcoming the biases along with taking relevant tests as preparatory measures. Behavioural Biases are inevitable and they creep in without notice, hence better understanding and conscious effort to handle them can be quite fetching enabling investors avoid losses.

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